
Microscopic Petrography. *E. Wm. Heinrich.* McGraw-Hill Book Company, Inc., New York. 1956. xiii+296 pp. \$6.50.

This work is intended as a reference volume for practicing geologists, as well as a textbook for students at the initial or intermediate level. The author has furthered his aim by not proposing any new rock names, and keeping the varietal names to a minimum.

The book is mainly a series of detailed petrographic descriptions of the more common rocks. Under each type there is a systematic breakdown into the following categories: definitions, textures and microstructures, petrologic and geographic occurrences, and mineralogy. This logical arrangement greatly facilitates use of the book for reference purposes. More than 125 photomicrographs accompany the descriptions. These, with occasional microdrawings, give the reader an excellent characterization of each rock type.

The author does not include comprehensive classification tables to aid students—nor is there any attempt to give references to original sources. Such references as appear are limited to standard textbooks, and a few articles on the use of the universal stage and preparation of thin sections.

During a discussion on the sequence of crystallization of igneous rocks (p. 26), it is stated that in the general case, the minerals, ilmenite, apatite, magnetite, zircon, and sphene are among the first to form. Although this is assumed to be true by many petrologists, it is contrary to the recent findings of Prince, Moorhouse, and others.

In addition to descriptions of rock types, the author discusses micrometric analyses, staining, and insoluble residue and heavy mineral techniques. Aside from the very minor criticisms mentioned above, this book can be described as an excellent contribution to the field of petrography. The wealth of detail, as well as the lucid presentation, should strongly appeal to both the student and the practicing petrographer.

ERNEST G. EHLERS

Man's Role in Changing the Face of the Earth. William L. Thomas, Jr., Ed. University of Chicago Press. 1956. xxxviii+1,193 pp. \$12.50.

This impressive volume includes the background papers and a censored version of an international symposium held during June, 1955, at Princeton, New Jersey, under the sponsorship of the Wenner-Gren Foundation for Anthropological Research. The papers from 53 of the 70 participants are those distributed in advance of the sessions. The abbreviated record is from the week-long series of discussions among the varied specialists (about 40% earth-scientists, about 28% biologists, about 12% social-scientists, and the remaining 20% from applied-fields) from 10 countries.

The aim was to have a conference of amateurs and to make no serious attempt at coordination, much less synthesis. As might be expected, the result is a wealth of both highly abstract and middle-level ideas and of supporting detail. At best, the net effect is to stir the imagination rather than to increase the reader's disciplined intellectual control in the field being analyzed.

Part I, Retrospect, has 18 chapters, of which two (by Carl O. Sauer and Alexander Spoehr) can only be described as excellent, rich in both philosophical and operational types of ideas. Eight other chapters (by Clarence J. Glacken, Omer C. Stewart, Karl A. Wittfogel, Hermann von Wissmann, Soliman Huzayyin, Pierre Gourou, James C. Malin, and Lewis Mumford) are very good, full of stimulating ideas. The remaining chapters are more suited to encyclopedic or monograph type usage. All four sessions of the Retrospect part of the symposium—Man's Tenure of the Earth (chairman, F. Fraser Darling), Subsistence Economics (Alexander Spoehr), Commercial Economics (Paul B. Sears), and Industrial Revolution and Urban Dominance (Kenneth Boulding)—seem to have been stimulating to the participants, and should be to the reader.

On the whole, the several dozen chapters in Part II, Process, are disappointing, as nearly half are overwhelmingly factual in nature and only half a dozen (by Richard J. Russell, Edgar Anderson, Edward L. Ullmann, Paul B. Sears, Andrew Clark, and Donald H. McLaughlin) appear worthy of appraisals excellent or very good in terms of thought provoking content. The symposium discussions—Changes in Physical Phenomena (chairman, Alan M. Bateman), Changes in Biological Communities (Marston Bates), and Techniques of Learning: Their Limitations and Pit (Edgar Anderson and Sol Tax)—also varied widely in quality, with the last named arousing the most favorable reaction in this reviewer.

Part III, Prospect, had seven chapters, mostly very good or good in terms of mental stimulation (those by Sir Charles G. Darwin and F. S. C. Northrop being particularly challenging). The symposium discussions—Limits of the Earth: Materials and Ideas (chairmen, Joseph H. Willits and Lester E. Klimm), Man's Self-Transformation (Lewis Mumford), the Unstable Equilibrium of Man in Nature (Harrison Brown)—were very thought provoking and laid the ideological groundwork for fruitful coordination and attempted synthesis in the future.

The co-chairmen of the symposium—Carl O. Sauer, Marston Bates, and Lewis Mumford—summarized respectively the three sessions, Retrospect, Process, and Prospect, in the closing meeting. All three are high caliber, with those by Bates and Mumford being especially appropriate in summing up the strengths and weaknesses of current philosophies and methods of attack on land-use problems.

The idea of this international symposium was apparently conceived by William L. Thomas, Jr., of the Wenner-Gren Foundation, and the one week symposium followed nearly three years of planning, conferences, and preparations. About half of the background papers and session discussions seem to be concerned more with meticulous analysis than as first attempts leading to coordination and synthesis, but even so there is more real attempt at the latter in this volume than in anything else conveniently available to the layman.

LAWRENCE A. HOFFMAN

Risk and Gambling. John Cohen and Mark Hansel. Philosophical Library, Inc., New York. 1956. x+153 pp. \$3.50.

The book's subtitle, "The study of subjective probability," clearly delimits its scope. The authors' concept of the term may be judged from "... the most diverse of our activities may share some common character which we may refer to as a risk-taking character ..." and "Risk-taking may be regarded as subjective probability in action."

Numerous empirical studies are reported in detail. Some involve the way children and adults predict the outcomes of events determined by chance. Others deal with variations in meanings associated with words like rarely, seldom, and often. Still others describe behavior in situations where some real risk is involved, such as the loss of a pedestrian life in traffic or the loss of a fortune at gambling tables.

Throughout the work a conspicuous attempt is made to apply objective study methods to the subject. The book will most likely appeal chiefly to psychologists and other students of human behavior.

WILLIAM B. MCINTOSH.